

INSTALLATION TIPS AND ACCESSORIES

For most vehicles we have a T-Harness available to make your remote starter installation quicker and easier. To order visit us online at **www.directwholesale.net**.

Additional remote transmitters can be purchased through Direct Wholesale at **www.directwholesale.net**.

For a full list of Bulldog Security accessories visit our web site at **www.bulldogsecurity.com**.

Your Bulldog Security remote starter is equipped with an interactive install CD and installation kit. The kit will consist of a computer friendly test light, wire ties and a roll of tape. Use only the computer friendly test light or volt meter when testing and probing wires.

For Technical assistance **www.bulldogsecurity.com** can provide a detailed wiring diagram for your vehicle including additional helpful install tips.

JBS Technologies

225 Technology Way
Steubenville Ohio 43952

WARRANTY

Bulldog Warranty Information

All Bulldog models have a Limited Lifetime Warranty on the main control module.

All parts excluding the control module have a two-year warranty against defects in workmanship, This includes shock sensors, remote transmitters and sirens. The control module will be repaired or replaced at our discretion for up to a 12 month period at no charge. After 12 months a \$30.00 fee will be charged for repair or replacement of the control module.

Removal and reinstallation charges are not the responsibility of JBS Technologies, LLC the manufacturer of Bulldog Security. Warranty registration must be completed within 7 days of the original date of purchase. Registration can be mailed in or performed on line at **www.bulldogsecurity.com**. JBS Technologies makes no warranty against the theft of a vehicle or its contents. This warranty only extends to the original system purchaser in the vehicle it was originally installed in.

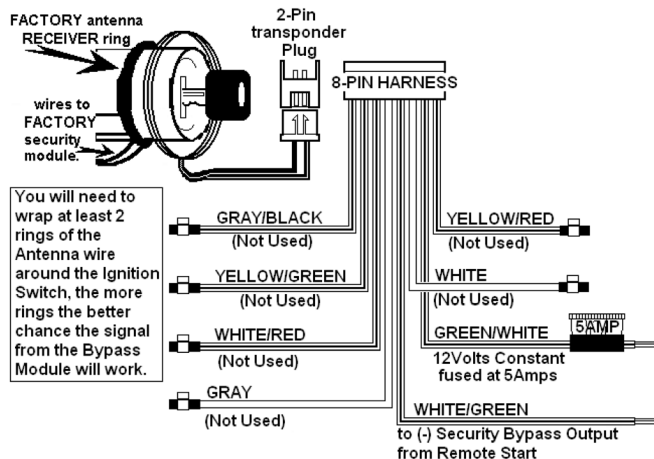
Limitation of Remedies

The purchasers' remedy is limited to the repair or replacement of the unit and in no event shall exceed the purchase price. Incidental, consequential and/or indirect damages are expressly disclaimed. No person or entity is authorized to alter or amend this limited lifetime warranty.

TRANSPONDER / PASSLOCK III

the H4/9 wire or H7/1 wire.

TRANSPONDER Diagram for 8-Pin Harness on Bypass Module:



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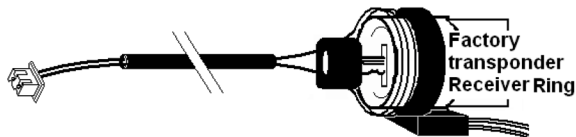
TRANSPONDER / PASSLOCK III

- Note:** If the vehicle does not start with the Remote Starter or runs for approx 5 seconds and shuts down, try adjusting or changing the position of the Transponder Key in the Bypass Module or adjusting the position of the (2)Two Loop Antenna wire around the Transponder Pick-up/Receiver Antenna as mentioned above.
- When connecting the Anti-Theft Bypass Module to your Remote Starter, you will need to activate this Bypass Module by connecting it in different ways depending on the Remote Starter you have. Attach the **WHITE/GREEN (-)Security Bypass Output** wire from the 8-Pin Harness to: if the unit you are using has a **4-Relay Pack**, tap this **WHITE/GREEN** wire into the Thin **WHITE** wire in the middle of the **3-Pin Plug**, if the Remote Start does not have a 4-Relay Pack and the Relays are On-Board, connect the **WHITE/GREEN** wire to the **WHITE, YELLOW or YELLOW BLACK (-)Negative Ignition Output or (-) Security Bypass Output** wire from the Main Harness on these Remote Starters. On the **DELUXE 200 or DELUXE 500 Models**, connect this **GREEN/WHITE** wire to the **BLUE/BLACK Ignition 3 Control Output wire, the H4/9 wire or H7/1 wire.**

TRANSPONDER / PASSLOCK III

routed through the Steering Column and up towards and then around the **Ignition Key Cylinder** and needs to be positioned so that there are at least (2)Two turns (the more turns the better chance the signal will be Received by the Factory Receiver Antenna) around the Ignition Key Cylinder as shown below.

Transponder systems often have a **BLACK PLASTIC RING** around the Ignition Lock Switch. This is the vehicle's Transponder Pick-up or Receiver Ring Antenna. It is important that the **at Least (2) Two loops** of the Bypass Module's **TRANSPONDER LOOP ANTENNA** be mounted on or as close to the Factory Receiver Ring (BLACK PLASTIC RING) as possible. Slide the tube up towards the ignition switch to tighten up the loops of wire. Tape in place to hold. Plug the 2-Pin Connector of the Transponder Loop Antenna into the Universal Bypass Module.



- Now start the vehicle with the Remote Starter. If the vehicle starts and runs for at least 30 seconds the Transponder Bypass Module, the placement of the Key inside the Bypass Module and the Transponder Loop Antenna are installed correct.

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REQUIRED TOOLS

Unless your remote starter includes a Bonus Installation Kit you will need the following items: a sharp knife, electrical tape and a computer-friendly test light. A 5/16-inch drill bit may be needed to install the hood pin switch. If the bottom of your dash on the driver's side will come off, you must remove it. If this is the case a screwdriver or a wrench may be needed.

INSTALLATION CHECK LIST

- Read the manual.
- Watch the video.
- Verify that you have all the parts listed in the manual.
- Obtain the correct wiring chart for you vehicle.
- Identify air bag and SRS wires before starting your installation.

Check to see if additional parts are needed. These items are identified in your manual and the wiring chart diagram for your vehicle.

Possible items to review:

- | | | |
|-------------------------------|----------|-------------|
| • Anti-theft By-pass included | • Relays | • Diodes |
| • Transponder Key | • EZ-Bus | • Resistors |

Check for optional parts to make your installation easier:

- | | |
|-------------|----------|
| • T-harness | • EZ-Bus |
|-------------|----------|

TECHNICAL ASSISTANCE

Should you need help. First check our website at www.bulldogsecurity.com or call our toll-free Tech Support Hotline at: 800-878-8007.

BEFORE YOU BEGIN

If your vehicle has an anti-theft system, you will need an additional module, Part #791.

Congratulations, you have purchased one of the most advanced remote starter systems ever made. Your new remote starter is a technological breakthrough utilizing the most advanced, state of the art technology and components. The dependability and variety of features make Bulldog Security the leader in the industry. Enjoy your new remote starter for years to come!

This remote system is designed to start your vehicle by sending a command signal from the remote transmitter. It is important that your installation be done in a well-ventilated area. **It is the responsibility of the owner to ensure that the remote system is not used to start the vehicle in an undesired location.**

It is recommended that a carbon monoxide detector be installed in the living area near a location where the vehicle may be garaged.

Since there are many different makes and models of vehicles, visit our website, www.bulldogsecurity.com.

Read this manual thoroughly before starting the installation.

TACH/TACHLESS OPERATION

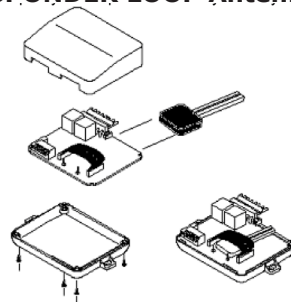
In most cases the decision to go with tachless mode will save time during the installation. If your vehicle is hard-starting then you should use tach mode.

MAKE SURE YOU PLACE THE WARNING STICKER UNDER YOUR HOOD.

TRANSPONDER / PASSLOCK III

purchase one through JBS Technologies, but make sure they program all keys to the vehicle since learning just one transponder could erase all other key transponders (including the key used for the Bypass Module).

1. Again, an extra **Programmed Transponder Ignition Key** that starts the vehicle, will need to be placed inside the Anti-Theft Bypass Module.
2. Pull apart the case and place the Programmed **TRANSPONDER KEY**, inside the **10-Wire Loop** on the circuit board. Transponder Keys are directional and must be placed along the same direction that the key would lay in the Ignition Switch. Use the double stick foam tape provided, one layer on the circuit board and then the Transponder Key, and finally the second double-stick foam tape layer on top of it to hold key securely in place, See Below:
3. The **TRANSPONDER LOOP Antenna** must be

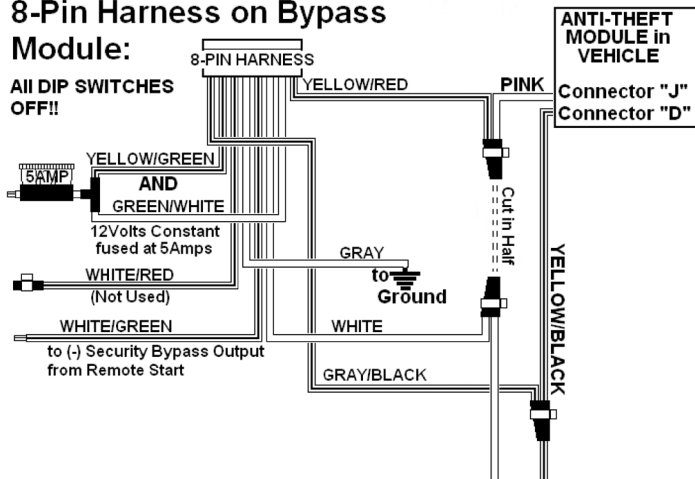


SATURN

SATURN ANTI-THEFT BYPASS DIAGRAM 8-Pin Harness on Bypass

Module:

All DIP SWITCHES
OFF!!



TRANSPONDER / PASSLOCK III

VATS, 'Smart Key', PASSLOCK III, Sentry Key, Securi-Lock and others, are all TRANSPONDER SYSTEMS:

Note: For this type of Anti-Theft System – you must sacrifice one of your spare Programmed Transponder Ignition Keys that STARTS this vehicle. This extra **TRANSPONDER Key** will be **PLACED INSIDE the Anti-Theft Bypass Module**, your dealership can program an extra spare key, you can get one from a local Lock Smith or

PRECAUTIONS

This system is designed for use with vehicles equipped with fuel-injected, gasoline engines and automatic transmissions only.

SAFETY FIRST!

Never start your vehicle if it is indoors. A periodic safety check is recommended to ensure that your system is in proper working order.

DO NOT use mechanical wiring connections, such as crimp or snap together taps. **DO NOT USE** mechanical wiring connections such as a crimp or snap together taps except on wires that are pre-installed from the factory. For wires that do not have the snap connectors pre-installed from the factory, wires must be connected using the illustrations under the Making Connections section of this manual. Failure to properly connect the wires can result in damage to your system or your vehicle.

DO NOT disconnect the battery if the vehicle has an anti-theft-coded radio or is equipped with an airbag. Doing so may cause a warning light to be displayed and may require a trip to the dealer to be corrected.

DO NOT leave the interior or exterior lights on for an extended period of time as it may cause battery drain. Remove the dome light fuse from the fuse box. **NOTE:** Starter systems do not work well with a partially discharged battery.

DO NOT mount the control module until all connections have been made and tested.

PLEASE USE CAUTION: DO NOT CUT, PROBE OR DISCONNECT THE VEHICLE'S AIRBAG WIRES. THESE WIRES WILL ALMOST ALWAYS BE INSIDE A BRIGHT YELLOW TUBE LOCATED NEAR THE STEERING COLUMN HARNESS.

WARNING! On vehicles with air bags or supplemental restraint systems (SRS) you may notice a bright YELLOW or RED tube with small wires in it marked SRS underneath the steering column near the key cylinder. DO NOT tamper or unplug these for any reason to prevent costly damages to your vehicle or personal injury. Tampering may cause unintended deployment of the air bags.

PRECAUTIONS

If your vehicle is equipped with air bags or a supplemental restraint systems (SRS) and you CAN NOT identify the air bag wires, STOP THE INSTALLATION IMMEDIATELY and have a professional identify the air bag wires before continuing the installation.

WARNING! GENERAL MOTORS REAR WHEEL DRIVE VEHICLES AND DODGE DAKOTAS

All General Motors rear wheel drive vehicles and Dodge Dakotas built prior to 1996 do not have an electrical Neutral Safety switch. They have a mechanical neutral safety switch. The mechanical neutral safety switch operates as follows.

- The key will only turn to start position when the gear selector is in park or neutral.
- The key can only be removed from the ignition switch when the gear selector is in the park position.

You must use special precautions with this system.

USING YOUR TEST PROBE

To operate your test probe, connect the **BLACK** clip to a **good chassis ground**. Then connect the **RED** clip to a **good 12V (+) positive** source. If the test probe is connected correctly, both the **GREEN** and the **RED** lights will be dimly illuminated. If a **(+) positive** source is probed, the **RED** light will glow bright and the **GREEN** light will go out. If a **(-) negative** source is probed, the **GREEN** light will glow bright and the **RED** light will go out.

MAKING WIRING CONNECTIONS

- Strip back two inches of insulation on the wire from the remote starter.

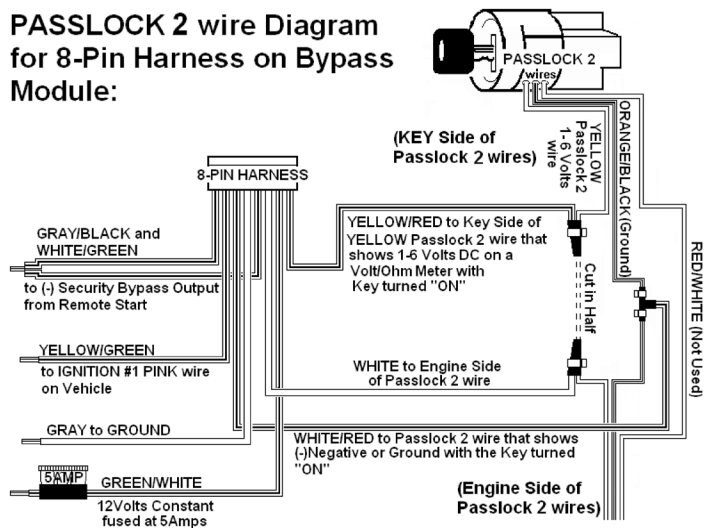


SATURN

- Cut the **PINK wire in half** and connect as shown.
- Turn all Dip Switches **OFF**.
- When connecting the Anti-Theft Bypass Module to your Remote Starter, you will need to activate this Bypass Module by connecting it in different ways depending on the Remote Starter you have. Attach the **WHITE/GREEN (-) Security Bypass Output** wire from the 8-Pin Harness to: if the unit you are using has a **4-Relay Pack**, tap this **WHITE/GREEN** wire into the Thin **WHITE** wire in the middle of the **3-Pin Plug**, if the Remote Start does not have a 4-Relay Pack and the Relays are On-Board, connect the **WHITE/GREEN** wire to the **WHITE, YELLOW or YELLOW BLACK (-) Negative Ignition Output or (-) Security Bypass Output** wire from the Main Harness on these Remote Starters. On the **DELUXE 200 or DELUXE 500 Models**, connect this **GREEN/WHITE** wire to the **BLUE/BLACK Ignition 3 Control Output wire, the H4/9 wire or H7/1 wire**.

PASSLOCK II

PASSLOCK 2 wire Diagram for 8-Pin Harness on Bypass Module:



SATURN

Saturn vehicles (1996-2000) with Factory Keyless Entry have a unique Anti-Theft System.

1. Locate the **Factory Alarm Module** located behind the Right Rear Quarter Panel (trunk area). Connect the **PINK** and **YELLOW/BLACK** wires of Connector "J" and D" of the **Factory Anti-Theft Module** as shown.

MAKING WIRING CONNECTIONS

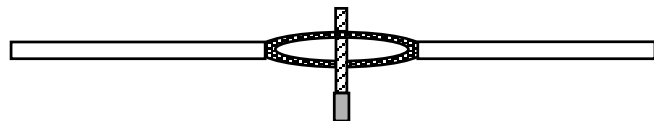
1. Strip back one inch of insulation on the wire you need to connect to.



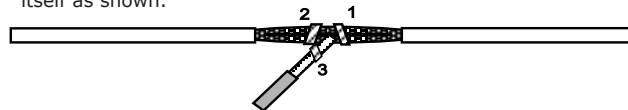
2. Separate the vehicle wire(s) as shown. Make the separation large enough to fit the other wire through.



3. Insert the wire(s) from the starter through the hole as shown. If two or more wires are inserted, wrap them in opposite directions.



4. Wrap the wire around one side then the other and finally around itself as shown.



5. Use electrical tape to wrap. Be sure to cover the wire about two inches on either side of the connection. First pull the wire that you have just connected along side the wire you connected to, tape and wire tie them together. Use this method for all connections.

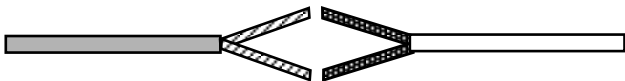


CAUTION: All wires must be wrapped with tape and wire tied.

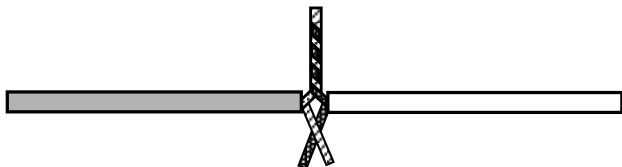
MAKING END TO END CONNECTIONS

Use this method **ONLY** when connecting two separate wires end to end.

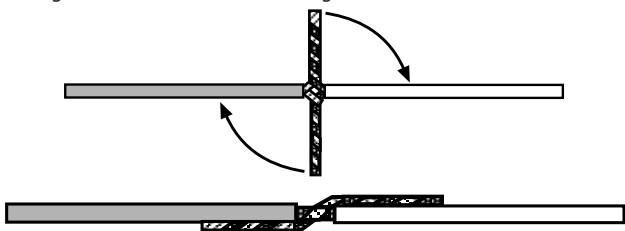
1. When tying two separate wires together at their ends, strip back 1" of insulation on both wires and separate the strands of wire as shown below.



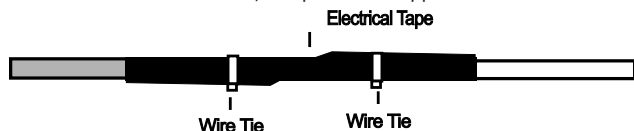
2. Strip back one inch of insulation on the wire you need to connect to.



3. Separate the vehicle wire(s) as shown. Make the separation large enough to fit the other wire through.



4. Insert the wire(s) from the starter through the hole as shown. If two or more wires are inserted, wrap them in opposite directions.



PASSLOCK II

8. With the probes held firmly – dial-in the final resistance value needed for your system by turning the screw on the variable resistor on the side of the unit next to the Dip Switches. Turn the screw until the resistance value matches the resistance value of the key.
9. Connect the bypass module using the diagram on the next page. Be sure to tape up any connections **DO NOT** leave any exposed wires.
10. When connecting the Anti-Theft Bypass Module to your Remote Starter, you will need to activate this Bypass Module by connecting it in different ways depending on the Remote Starter you have. Attach the **WHITE/GREEN and GRAY/BLACK (-)Security Bypass Output** wires from the 8-Pin Harness to: if the unit you are using has a **4-Relay Pack**, tap this **WHITE/GREEN and GRAY/BLACK** wires into the Thin **WHITE** wire in the middle of the **3-Pin Plug**, if the Remote Start does not have a 4-Relay Pack and the Relays are On-Board, connect the **WHITE/GREEN and GRAY/BLACK** wires to the **WHITE, YELLOW or YELLOW BLACK (-)Negative Ignition Output or (-) Security Bypass Output** wire from the Main Harness on these Remote Starters. On the **DELUXE 200 or DELUXE 500 Models**, connect this **GREEN/WHITE and GRAY/BLACK** wires to the **BLUE/BLACK Ignition 3 Control Output wire, the H4/9 wire or H7/1 wire.**

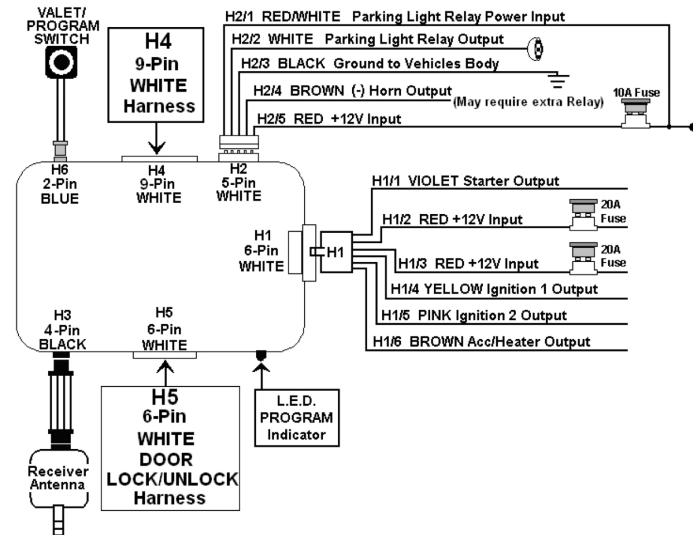
PASSLOCK II

- Turn the key to the "Run" position and place the vehicle in Reverse.
- Turn the key to start, then release the key to the "run" position and measure the resistance between the **KEY SIDE** of the **YELLOW** wire (this wire will show 1 to 6 V DC on a Volt/Ohm Meter) and the **ORANGE/BLACK** wire or **BLACK** wire (this wire will show GROUND) the **RED/WHITE** wire is **NOT USED!!**. (The vehicle will not start since you are not in Park but be sure to have your foot on the brake for safety.) Reverse your test leads around, to verify that you get the same readings. If you get two different readings – we have found that the higher of the two readings is the correct resistance – but check again.
- When you have identified the correct resistance use the chart on Page 47 to set the resistance on the bypass module. Locate the closest value that is less than your desired value. Set Dip-Switches 2 through 6 to match the chart on Page 47.
- Put your ohm meter (multi-meter) probes on the (2)Two silver resistance measuring pads through the opening shown in the drawing – making good contact with these (2)Two silver pads on the board. (See drawing on page 44). Or put your (2)Two probes into the (2)Two holes on the bottom of the case making contact with the underside of the silver pads. Either contact point method will work.

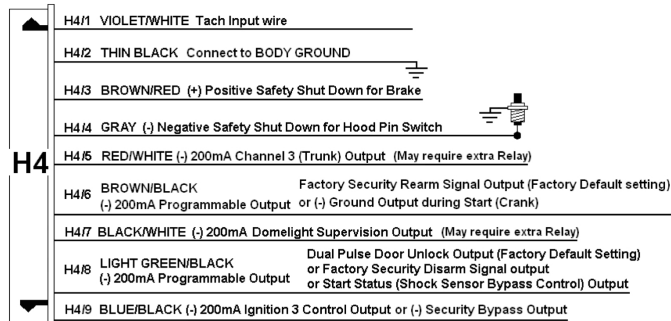
COMPONENTS

- 1 - Main Control Model
- 1 - 4-button 2-way LCD Remote Transmitters
- 1 - Antenna
- 1 - Pin Switch
- 1 - 6-Pin Harness
- 1 - 5-Pin Harness
- 1 - 9-Pin harness
- 1 - 4-Pin Antenna Harness
- 1 - 6-Pin Door Lock Harness
- 1 - Installation Kit
- 1 - Installation & Owner's Manual
- 1 - Instructional DVD
- 1 - IF 114 Anti-Theft Bypass Module
- 1 - 8-Pin Harness

WIRING DIAGRAM



WIRING HARNESES



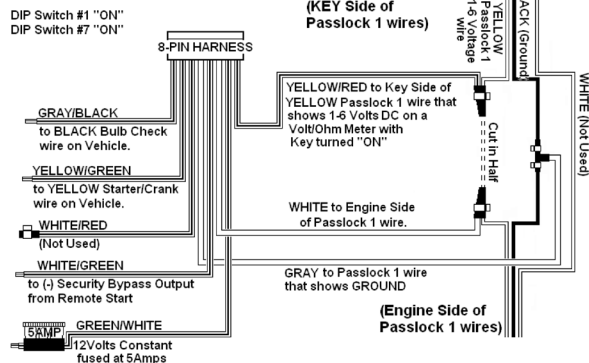
IMPORTANT NOTE: Directly connect the H4/2 THIN BLACK wire to Ground

Keep all wiring away from moving engine parts, exhaust pipes and high tension cable. Tape wires that pass through holes on the firewall to prevent fraying. Watch out for sharp edges that may damage wires and cause short circuits.

CAUTION: Do not connect the wire harness to the control module until all wiring to vehicle is complete.

PASSLOCK I

PASSLOCK 1 wire Diagram for 8-Pin Harness on Bypass Module:



PASSLOCK II

1. Remove the Lower Steering Column cover on the Steering Column.
2. Locate the **(3)Three Small 20 Gauge wires (YELLOW, ORANGE/BLACK sometimes BLACK and RED/WHITE wires)** coming out of the Ignition Key Cylinder of the Steering Column, these wires are usually wrapped in BLACK friction tape.
3. Cut the **Yellow** wire in half and strip back both ends. Remove the insulation on the **Orange/Black** wire without cutting the wire. The **Red/White** wire is not used.

connector (between the Heavy Gauge RED and RED/WHITE wires), in the main Ignition Switch Harness. NOTE ** This is a different wire than the BLACK GROUND wire mentioned in the above steps.

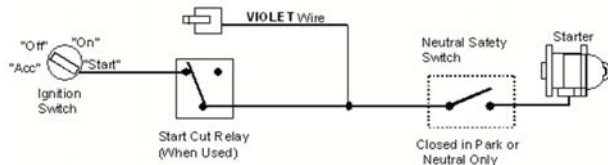
8. Connect the Bypass module using the diagram below. Be sure to tape up any connections, **DO NOT** leave any exposed wires.
9. When connecting the Anti-Theft Bypass Module to your Remote Starter, you will need to activate this Bypass Module by connecting it in different ways depending on the Remote Starter you have. Attach the **WHITE/GREEN (-)Security Bypass Output** wire from the 8-Pin Harness to: if the unit you are using has a **4-Relay Pack**, tap this **WHITE/GREEN** wire into the thin **WHITE** wire in the middle of the **3-Pin Plug**, if the Remote Start does not have a 4-Relay Pack and the Relays are On-Board, connect the **WHITE/GREEN** wire to the **WHITE, YELLOW or YELLOW BLACK (-)Negative Ignition Output or (-) Security Bypass Output** wire from the Main Harness on these Remote Starters. On the **DELUXE 200 or DELUXE 500 Models**, connect this **GREEN/WHITE** wire to the **BLUE/BLACK Ignition 3 Control Output wire**, the **H4/9 wire or H7/1 wire**.

H1: 6-PIN HEAVY GAUGE WIRING CONNECTIONS:

Remember that the system duplicates the functions of the ignition key switch! Below, we will explain the three basic functions of the ignition switch. Since this installation will require analysis of the ignition switch functions, we recommend making the three connections below at the ignition switch harness directly.

H 1 / 1 - Violet wire - Starter Output

Careful consideration for the connection of this wire must be made to prevent the vehicle from starting while in gear. The connection of the **VIOLET** wire will be made to the low current start solenoid wire of the ignition switch harness. This wire has **+12 volts** (red LED on the test light) when the ignition switch is turned to the **"START" (CRANK)** position only. This wire will not show +12 volts in all other ignition switch positions. **NOTE:** This wire must be connected to the vehicle side of the starter cut relay (when used). For the electrical neutral switch configuration, this connection must be made between the starter inhibit relay (when used) and the neutral safety switch as shown in the following diagram. Failure to connect this wire to the ignition switch side of the neutral safety switch can result in personal injury and property damage. **SEE NEUTRAL START SAFETY TEST FOR FURTHER DETAILS.**



WIRING CONNECTIONS

H1/2, H1/3 - Red wires - +12V Power Input -

Remove the **(2) 20A** fuses prior to connecting these wires and do not replace them until the satellite has been plugged into the control module. These wires are the source of current for all the circuits the relay satellite will energize. They must be connected to a high current source. Since the factory supplies **(+) 12V** to the key switch that is used to operate the motor, it is recommended that these wires be connected there.

Note: If the factory supplies two separate **(+) 12V** feeds to the ignition switch, connect one **RED** wire of the satellite to each feed at the switch.

H1/4 -Yellow wire - Ignition Output -

Connect the **YELLOW** wire to the ignition wire from the ignition switch. The ignition wire should receive "**12 volts**" when the ignition key is in the "**ON**" or "**RUN**" and "**START**" or "**CRANK**" position. When the ignition is turned "**OFF**", the ignition wire will not show +12 volts. **The YELLOW wire must be connected.**

H1/5 - Pink wire - Ignition 2 Output

Some vehicles have (2) ignition wires that must be connected. Connect the **PINK** wire to the ignition 2 wire from the ignition switch. The ignition wire will show "**12 volts**" when the ignition key is in the "**ON**" or "**RUN**" and "**START**" or "**CRANK**" position. When the ignition is turned "**OFF**", the ignition wire will not show +12 volts. If the **PINK** wire is not used, cap the end of the wire.

H1/6 Brown wire - Accessory Output (Heater /ACC Output) -

Connect the **BROWN** wire to the accessory wire in the vehicle that covers the climate control system.

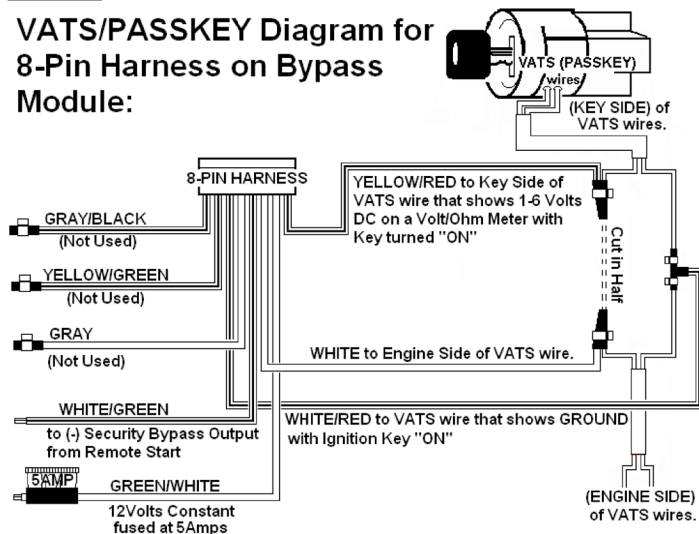
An accessory wire will show **+ 12 volts** when the ignition switch is turned to the "**ACCESSORY**" or "**ON**" and "**RUN**" positions, and will show **0 Volts** when the key is turned to the "**OFF**" and "**START**" or "**CRANK**" position. There will often be more than one accessory wire in the ignition harness. The correct accessory wire will power the vehicle's climate control system. Some vehicles may have separate wires for the blower motor and the air conditioning compressor. In such cases, it will be necessary to add a relay to power the second accessory wire.

PASSLOCK I

3. Cut the **YELLOW** wire in half and strip back both ends. Remove some of the insulation on the **BLACK** wire without cutting the wire and the **WHITE** wire is **not used!!**.
4. Put the vehicle into reverse then turn the ignition key to the Start position and release it to the run position. The vehicle will not start since you are not in Park – but be sure to have your foot on the brake for safety.
5. With the ignition key still in and turned to the "**RUN**" position, measure the resistance between the **KEY SIDE** of the **YELLOW** wire (this wire will show 1 to 6 V DC on a Volt/Ohm Meter) and the **BLACK** wire (this wire will show GROUND). Make several measurements to verify that you have a consistent resistance. Reverse your test leads around, to verify that you get the same readings. If you get two different readings – we have found that the higher of the two readings is the correct resistance – but check again.
6. When you have identified the correct resistance use the chart on Page 47 to set the resistance on the bypass module.
7. Locate the **BLACK "Bulb Test"** wire in the Ignition Switch Harness on the **LEFT SIDE** of the Steering Column in cavity "**D**" or "**E**" of the **Black 5-Pin**

VATS

VATS/PASSKEY Diagram for 8-Pin Harness on Bypass Module:



PASSLOCK I

1. Remove the Lower Steering Column cover on the Steering Column.
2. Locate the (3) Three small 20 Gauge wires (YELLOW, BLACK and WHITE wires in a GRAY or BLACK Plug) coming out of the Ignition Key Cylinder on the Bottom right hand side of the Steering Column.

WIRING CONNECTIONS

H2: 5-PIN WIRE HARNESS:

H2/1 - RED/WHITE wire - Parking Light Relay Power Input -

The **RED/WHITE** wire is the input to the flashing parking light relay. The connection of the **RED/WHITE** wire will determine the Output Polarity on the flashing parking light relay wire **WHITE**. If the vehicle you are working on is a **(+) Positive Parking Light** wire, leave the **RED** and **RED/WHITE** wires connected together and connect these wires to a **(+) 12 Constant** source. If your vehicle's Parking Light wire is a **(-) Negative** you will need to cut the **RED/WHITE** wire from the RED wire, place the **RED** wire to a **(+) 12 Constant** source and then connect the **RED/WHITE** wire to a good body **Ground**.

H2/2 - White wire - Parking Light Relay Output (10A power output)

Connect the **WHITE** wire to the parking light wire coming from the headlight switch. Do not connect the **WHITE** wire to the dashboard lighting dimmer switch. (Damage to the dimmer will result). The limitation of the **WHITE** wire is **10 AMP max**. Do not exceed this limit or damage to the alarm and parking relay will result.

H2/3 - Black wire - System Ground -

This is the main ground connection of the alarm module. Make this connection to a solid section of the vehicle frame. Do not connect this wire to any existing ground wires supplied by the factory wire loom, make the connection to the vehicle's frame directly.

H2/4 - Brown wire - (-1 200mA Horn Output -

This wire is provided to use the existing vehicle's horn as the keyless entry system's optional's warning audible device. It's a transistorized low current output, and should only be connected to the low current ground output from the vehicle's horn switch.

H2/5 - Red wire - System Power (+12V Constant) -

The **RED** wire supplies power to the system. Connect this wire to a constant **+12 volt** source.

H3: BLACK 4-PIN CONNECTOR. - TWO-WAY TRANSCEIVER/ANTENNA MODULE

The Two-way transceiver/antenna mounts on the location above the dashboard of the vehicle for best reception. We suggest you mount it on the lower left or upper left-hand side of windshield.

Warning! Do not mount in such a manner that it obstructs the driver's view.
- Remove the protective tape backing.
- Carefully align the two-way transceiver/antenna and apply to windshield.

WIRING CONNECTIONS

- Route the black connector wire behind the trim and connect to the two-way transceiver/antenna.
- Connect the other end to the control module.
- Special considerations must be made for windshield glass as some newer vehicles utilize a metallic shielded window glass that will inhibit or restrict RF reception. In these vehicles, route the two-way transceiver/antenna module away from metallic shielded window glass as far as possible.

H4: 9-PIN WIRE CONNECTORS:

H4/1 - Violet / White wire - Tach. Input Connection -

Note: You should connect this wire if you program the Feature IV - 2 to "Engine Checking TACH" otherwise do not connect this wire and tape the end. **Note: No connection of this wire is required, if you use the voltage checking type mode.**

This input provides the remote start system with information about the engines revolutions per minute (RPM). It can be connected to the negative side of the coil in vehicle with conventional coils. In multi-coil and high energy ignition system locating a proper signal may be more difficult. Once connected, test the tachometer wire, a multi-meter capable of testing AC voltage must be used. The tach wire will show between **1V** and **6V** AC at idle, and will increase as engine RPM increases. In multi-coil ignition system, the system can learn an individual coil wire. Individual coil wires in a multi-coil ignition system will register lower amounts of AC voltage. Also, if necessary, the system can use a fuel injector control wire for engine speed sensing. Common locations for a tach wire are the ignition coils itself, the back of the gauges, engine computers, and automatic transmission computers.

IMPORTANT! Do not test tach wires with a test light or logic probe. The vehicle will be damaged.

How to find a tach wire with your multi-meter:

1. Set the ACV or AC voltage (12V or 20V is fine.)
2. Attach the (-) probe of the meter to chassis ground.
3. Start and run the vehicle.
4. Probe the wire you suspect of being the tach wire with the red probe of the meter.
5. If this is the correct wire the meter will read between IV and 6V.

IMPORTANT NOTE: You must o. ro-a ram the "Tach Signal" before trying to remote start.

VATS

WHITE or (1) WHITE/BLACK striped and (1)PURPLE/BLACK striped) 20 Gauge wires, these wires are often in a **ORANGE or BLACK Plastic Tube**. Be careful not to cut into the **YELLOW Air Bag wires!** The **Air Bag wires** are often in a **YELLOW Plastic Tube** that is clearly marked. The **VATS wires** run from the **Ignition Switch down the Steering Column to the under side of the dash**. Connect the Universal Bypass Module using the diagram on the next page.

6. When connecting the Anti-Theft Bypass Module to your Remote Starter, you will need to activate this Bypass Module by connecting it in different ways depending on the Remote Starter you have. Attach the **WHITE/GREEN (-)Security Bypass Output** wire from the 8-Pin Harness to: if the unit you are using has a **4-Relay Pack**, tap this **WHITE/GREEN** wire into the Thin **WHITE** wire in the middle of the **3-Pin Plug**, if the Remote Start does not have a 4-Relay Pack and the Relays are On-Board, connect the **WHITE/GREEN** wire to the **WHITE, YELLOW or YELLOW BLACK (-)Negative Ignition Output or (-) Security Bypass Output** wire from the Main Harness on these Remote Starters. On the **DELUXE 200 or DELUXE 500 Models**, connect this **GREEN/WHITE** wire to the **BLUE/BLACK Ignition 3 Control Output wire**, the **H4/9 wire or H7/1 wire**.

VATS

1. Measure the resistance of the little Pellet on the Ignition Key. It should be between **392 Ohms and 11,800 Ohms**. To do this, put the Ohm Meter probes on each side of the Key Pellet. The Resistance value should be close to one of the following (all values in Ohms): **392, 523, 681, 887, 1.13K, 1.87K, 3.01K, 3.74K, 4.75K, 6.04K, 7.50K, 9.53K, 11.8K**.
2. Locate the closest value that is less than your desired value. **Set Dip Switches 2 through 6** to match the chart on Page 47.
3. Put your **Ohm Meter (multi-meter)** probes on the **(2)Two Silver Resistance Measuring Pads** through the opening shown in the drawing – making good contact with these (2)Two Silver Resistance Measuring Pads on the board. (See drawing on page 1). Or put your (2)Two **Ohm Meter** (multi-meter) probes into the **(2)Two holes** on the bottom of the case making contact with the underside of the **Silver Pads**. Either contact point method will work.
4. With the probes held firmly – dial-in the final resistance value needed for your system by turning the screw on the variable resistor on the side of the unit next to the Dip Switches. Turn the screw until the resistance value matches the resistance value of the Pellet on the Key.
5. Locate the pair of **VATS wires** sometimes **(2)**

WIRING CONNECTIONS

H4/2 - Thin Black wire - (-) Neutral Safety Switch or (-) Remote Toggle Switch Input -

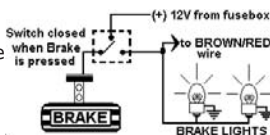
When the THIN BLACK wire is grounded, the remote start unit is operable. When this wire is open from ground, the remote start is disabled.

1. The optional "remote start toggle switch" can be added on to temporarily disable the Remote Start Device, it can prevent the vehicle from being remote started accidentally. This feature is useful if the vehicle is being serviced or stored in an enclosed area. To disable the remote start, move the remote start enable toggle switch to the 'OFF' position. To enable the remote start, move the optional remote start enable toggle switch to the "ON" position.
2. If needed, this wire will connect to the PARK/NEUTRAL switch in the vehicle. (See the TESTING YOUR INSTALLATION GUIDE)

IMPORTANT NOTE: Directly connect the THIN BLACK wire to the 'GROUND' when this wire is not used.

H4/3 - Brown / Red wire - (+) Positive Safety Shut Down For Brake

This wire ~provides an instant shutdown for the remote start, whenever it receives **+12 volts**. If the brake lights switch in the vehicle switches **+12 volts** to the brake light connect this wire to the output side of the brake switch. This will allow the remote start to shut down if an attempt is made to operate the vehicle without the key while running under the control of the remote start. In most vehicles, in order to shift gear, the brake pedal must be pressed. The brake input will in turn cause the remote start unit to shut off. (See diagram.)

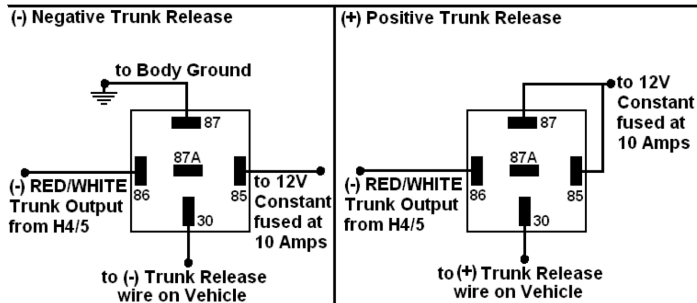


H4/4 - Grey wire - (-) Negative Safety Shut Down For Hood Pin Switch

This wire provides an instant shutdown for the remote start, whenever it is grounded. Connect the wire to the hood pin switch previously installed. This wire must be routed through a grommet in the firewall and connected to the hood pin switch.

WIRING CONNECTIONS

TRUNK RELEASE OUTPUT DIAGRAM:



H4/5 - RED/WHITE wire - (-) 200mA Channel 3 (Trunk) Output

This wire is a 1 Second pulsed Ground or (-) Negative Output that can be used to operate the Electric Truck Release on a vehicle. If the Trunk Release is a (-) Negative that is BCM controlled, no extra parts are required. If the vehicle's Trunk Release wire is a (+) Positive or is not BCM Controlled, then an extra Relay Part #775 is required. See Diagram above.

H4/6 - Brown I Black wire - (-) 200mA Factory Security Rearm Signal / Key Sensor Output - Factory Security Rearm Signal Output (Factory default setting.)

This output is programmable. If programmed it can rearm a factory installed security system. This wire will supply a pulse whenever the remote start times out or is shut down using the transmitter and remote door locking.

Ground Output During Start Crank)

This wire will provide a 200mA ground output while the starter output of the remote start unit is active. This output can be used to activate the Crank Low/Bulb Test wire found in some GM vehicles. This wire is also referred to as the ECM wake up wire in some vehicles.

USE THIS CHART FOR VATS, PASSLOCK I & PASSLOCK II

1 - 8-Pin Harness

Dip Switch #	2	3	4	5	6	Final Resistance (k ohms)
Resistor Value	0.825	1.65	3.32	6.65	13.3	
ON	ON	ON	ON	ON	ON	0.000 +Trimpot Value
OFF	ON	ON	ON	ON	ON	0.825 +Trimpot Value
ON	OFF	ON	ON	ON	ON	1.650 +Trimpot Value
OFF	OFF	ON	ON	ON	ON	2.475 +Trimpot Value
ON	ON	OFF	ON	ON	ON	3.320 +Trimpot Value
OFF	ON	OFF	ON	ON	ON	4.145 +Trimpot Value
ON	OFF	ON	ON	ON	ON	4.970 +Trimpot Value
OFF	OFF	ON	ON	ON	ON	5.795 +Trimpot Value
ON	ON	ON	OFF	ON	ON	6.650 +Trimpot Value
OFF	ON	ON	OFF	ON	ON	7.475 +Trimpot Value
ON	OFF	ON	OFF	ON	ON	8.300 +Trimpot Value
OFF	OFF	ON	OFF	ON	ON	9.125 +Trimpot Value
ON	ON	OFF	OFF	ON	ON	9.970 +Trimpot Value
OFF	ON	OFF	OFF	ON	ON	10.795 +Trimpot Value
ON	OFF	OFF	OFF	ON	ON	11.620 +Trimpot Value
OFF	OFF	OFF	OFF	ON	ON	12.445 +Trimpot Value
ON	ON	ON	ON	OFF	ON	13.300 +Trimpot Value
OFF	ON	ON	ON	OFF	ON	14.125 +Trimpot Value
ON	OFF	ON	ON	OFF	ON	14.950 +Trimpot Value
OFF	OFF	ON	ON	OFF	ON	15.775 +Trimpot Value
ON	ON	OFF	ON	OFF	ON	16.620 +Trimpot Value
OFF	ON	OFF	ON	OFF	ON	17.445 +Trimpot Value
ON	OFF	OFF	ON	OFF	ON	18.270 +Trimpot Value
OFF	OFF	OFF	ON	OFF	ON	19.095 +Trimpot Value
ON	ON	ON	OFF	OFF	ON	19.950 +Trimpot Value
OFF	ON	ON	OFF	OFF	ON	20.775 +Trimpot Value
ON	OFF	ON	OFF	OFF	ON	21.600 +Trimpot Value
OFF	OFF	ON	OFF	OFF	ON	22.425 +Trimpot Value
ON	ON	OFF	OFF	OFF	ON	23.270 +Trimpot Value
OFF	ON	OFF	OFF	OFF	ON	24.095 +Trimpot Value
ON	OFF	OFF	OFF	OFF	ON	24.920 +Trimpot Value
OFF	OFF	OFF	OFF	OFF	ON	25.745 +Trimpot Value

All resistor values shown are in 'K-Ohms' or 1,000 Ohms. Thus the 1.650 value shown in the (3) Third row is 1,650 Ohms or 1.65K Ohms.

VATS
PASSLOCK I
PASSLOCK II

Dip Switch #1
OFF
ON
OFF

Dip Switch #2
OFF
ON
OFF

LIST OF VEHICLES AND TYPES OF SECURITY SYSTEMS

Dodge 300 M 99+	Transponder	Pontiac Sunfire 2000	Passlock II
Dodge Intrepid 98+	Transponder	Porsche (all 97+)	Transponder
Dodge Neon 2000	Transponder	Saab (all 97+)	Transponder
Ford Contour 97+	Transponder	Saturn 97+	Factory
Ford Crown Vic 96+	Transponder	Toyota Avalon 98+	Transponder
Ford Pick-UP 150/250 2000	Transponder	Toyota Camry 98+	Transponder
Ford Windstar 2000	Transponder	Toyota Land Cruiser 98+	Transponder
Toyota Solara 99	Transponder	Toyota Supra 98+	Transponder
Volkswagon Passat 98+	Transponder	Volvo (all 98+)	Transponder

First determine what type of Anti-Theft System you have in your vehicle. If unsure – follow the chart on the previous page to determine the system you have. There are several types of systems as outlined below:

General Motors **VATS**, **PASSLOCK I** and **PASSLOCK II** Anti-Theft Systems: For these, you will be required to dial-in a resistor value that matches the resistance on your vehicles Anti-Theft System. The method is described on the following pages for each type of system using the Dip Switches and the Variable/Adjustable Resistor. The Variable Resistor is a (10)Ten turn Potentiometer which can be dialed up from (0) Zero Ohms to 1,000 Ohms.

SATURN vehicles (1996-2000) simply hook up to the Universal Bypass Module as shown on Page 57.

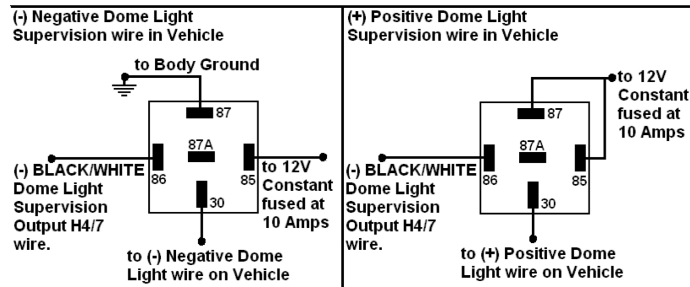
TRANSPONDER Anti-Theft Systems require an Extra Programmed Ignition Key to be placed inside the Universal Bypass Module. Follow the directions on Pages 58-62.

WIRING CONNECTIONS

H4/7 - BLACK/WHITE wire - (-) 200mA Dome Light Supervision Output

This wire is a Ground Output or (-) Negative when using the Key-less entry's Unlock button is pressed, this wire is used to turn on the Dome Light circuit in the vehicle. If the Dome Light circuit is not BCM Controlled or is a (+) Positive Dome Light circuit then an extra Relay Part #775 is required. See Diagram below.

DOMELIGHT SUPERVISION OUTPUT DIAGRAM



H4/8 - LT. Green Black wire - (-) 200ma Programmable Output Dual Pulse Door unlock Output (Factory default settings)

The dual pulse door unlock feature will work the most fully electronic door lock circuits. The vehicle must have an electronic door lock switch (not the lock knob or key switch), which, locks and unlocks all of vehicle's doors. When wired for this feature, pressing the disarm (or unlock button one time will disarm the alarm and unlock The drivers door only. Pressing the disarm (or unlock) button two times within (3) seconds, will disarm the alarm and all doors will unlock.

WIRING CONNECTIONS

Factory Security Disarm Signal Output -

This wire is designed to disarm a factory installed security system. This wire sends a negative (-) 1 seconds pulse upon a remote start and remote door unlocking. Some factory systems must be disarmed to allow remote starting. In most cases, this wire may be connected directly to the factory alarm disarm wire. The correct wire will show negative ground when the key is used to unlock the doors or trunk. This wire is usually found in the kick panel area in the wiring harness coming into the car body from the door.

Start Status Shock Sensor By-Pass Control) Output:

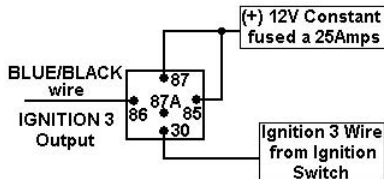
This wire is designed to bypass shock sensor module. This wire will supply an output at all times the remote start is operating plus an additional (3) seconds after the remote start unit is turned off.

H4/9 - BLUE/BLACK wire - (-) 200mA Security Bypass Output -

This wire provides a Ground or (-) Negative Output (4) Four Seconds before the Remote Start unit powers up Ignition #1. This wire remains Grounded or (-) Negative while in Remote Start Mode. Use this wire to activate the (-) Negative Input on a Security Bypass Module when Bypassing the Factory Anti-theft system on a vehicle or to Control a relay for an Ignition #3 connection if needed, See Diagram below.

Ignition 3 output:

Some newer vehicles use a third ignition wire which is required to start and keep the vehicle's engine running. If this is the case, wire an IGN 3 relay (not supplied) as shown. Do not connect any vehicle circuits together, they are isolated for a Ignition reason.



On vehicles that require a factory security bypass, connect the Blue / Black (H419) wire to the security bypass module.

LIST OF VEHICLES AND TYPES OF SECURITY SYSTEMS

Acura 3.2TL 98+	Transponder	GMC suburban 98+	Passlock II
Acura RL 98+	Transponder	GMC Sonoma 98+	Passlock II
Audi A4, A6, A8 98+	Transponder	GMC Sierra 98+	Passlock II
BMW (all 97 +)	Transponder	GMC Safari 98+	Passlock II
Buick Century 97+	VATS	GMC S-15 98+	Passlock II
Buick LeSabre 90 - 96	VATS	GMC Envoy 99+	Passlock II
Buick Park Ave 91 - 96	VATS	GMC Denali 99+	Passlock II
Buick Park Ave 97+	VATS	Transponder 98+	Passlock II
Buick Regal 93 - 96 +	VATS	Honda Accord 98+	Transponder
Buick Riviera 93 - 96	VATS	Honda Odyssey 98+	Transponder
Buick Riviera 93 - 96	VATS	Honda Odyssey 98+	Transponder
Buick Roadmaster 93 - 96	VATS	Honda Prelude 98+	Transponder
Cadillac Allante	VATS	Honda Prelude 98+	Transponder
Cadillac Brougham	VATS	Isuzu Hombre 98+	Passlock II
Cadillac Catera 97 +	VATS	Jeep Grd Cheerokee 99	Transponder
Cadillac DeVille 92 - 96	VATS	Jeep TJ (Wrangler) 99	Transponder
Cadillac DeVille 99	Transponder	Lexus (all 97+)	Transponder
Cadillac Escalade 99+	Passlock II	Lincoln Continental 97+	Transponder
Cadillac Eldorado 89 - 98	VATS	Lincoln Mark VIII 97+	Transponder
Cadillac Eldorado 99+	Passlock III	Lincoln Navigator 97+	Transponder
Cadillac Fleetwood 90m- 96	VATS	Lincoln Towncar 97+	Transponder
Cadillac Seville 90 - 98	VATS	Mercedes (all 97+)	Transponder
Cadillac Seville 99+	Transponder	Mercury Cougar 99	Transponder
Chevrolet Venture 99+	Transponder	Mercury Mystique 97+	Transponder
Chevy Astro Van 98+	Passlock II	Mercury sable 96+	Transponder
Chevy Blazer 98+	Passlock II	Nissan Maxima 98+	Transponder
Chevy Camaro 86+	VATS	Oldmobile Intrique 98+	Transponder
Chevy Cavalier 96-99	Passlock	Olds. Cutlass 97+	Transponder
Chevy Cavalier 2000	Passlock II	Oldsmobile Achieva 95	Passlock I
Chevy Cavalier 88 - 89	VATS	Oldsmobile Achieva 96+	Passlock II
Chevy Express 1997	Passlock II	Oldsmobile Alero 99	Passlock I
Chevy Lumina 96+	VATS	Oldsmobile Aurora	VATS
Chevy Malibu 97+	Passlock II	Oldsmobile Bravada 98	Passlock II
Chevy Monte Carlo 96 - 99	VATS	Oldsmobile Eighty-Eight	VATS
Chevy Pickup Full-size 98+	Passlock II	Oldsmobile Ninety-Eight	VATS
Chevy S-10 98+	Passlock II	Oldsmobile Silhouette 99	Transponder
Chevy Suburban 98+	Passlock II	Pontiac Bonneville 89+	VATS
Chevy Tahoe 98+	Passlock II	Pontiac Firebird 88+	VATS
Chevy Van 96+	Passlock II	Pontiac Grand Am 96-98	Passlock
Chevy Venture 1997 +	Passlock II	Pontiac Grand Am 99	Passlock II
Chrysler Concorde 98+	Transponder	Pontiac Grand Prix 92-96	VATS
Chrysler Sabring Conv 98+	Transponder	Pontiac Montana 99	Transponder
Chrysler LHS 99	Transponder	Pontiac Sunfire 96 - 99	Passlock I

MODEL IF114

VATS/PASSLOCK/TRANSPONDER

UNIVERSAL ALARM BYPASS MODULE

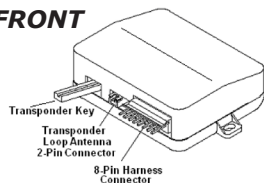
This module lets you bypass virtually any type of **Vehicle Anti-Theft System** on the market today to remotely start your vehicle without permanently disabling the Vehicle's Factory Anti-Theft System.

In 1985, General Motors came out with their first Vehicle Anti-Theft System known as **VATS** that uses a Resistor Pellet in the key. Since this time, other manufacturers have been following suit with their own Anti-Theft Systems. Most use a Transponder Anti-Theft System – a small Transmitting device in the head of the key that communicates a Security Code to the vehicle upon placing the Ignition key in the Ignition switch of the vehicle.

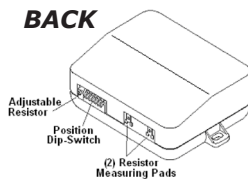
CONTENTS

- 1 VATS/Passlock/Transponder module
- 1 8-Pin Wire Harness
- 1 Transponder Loop w/connector
- 2 Cable Ties
- 1 Installation Booklet
- 2 Double-stick Foam Tape

FRONT



BACK



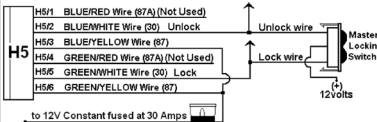
WIRING CONNECTIONS

H5 6-Pin Door Lock Connector:

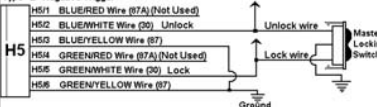
H5 WHITE 6-Pin Door Lock Harness

H5	H5/1	BLUE/RED Wire (87A)	Door Unlock Relay Output
	H5/2	BLUE/WHITE Wire (30)	Door Unlock Relay Output
	H5/3	BLUE/YELLOW Wire (87)	Door Unlock Relay Input
	H5/4	GREEN/RED Wire (87A)	Door Lock Relay Output
	H5/5	GREEN/WHITE Wire (30)	Door Lock Relay Output
	H5/6	GREEN/YELLOW Wire (87)	Door Lock Relay Input

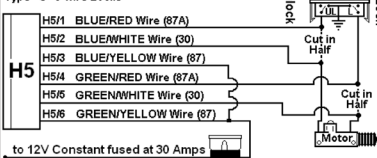
Type "A" Positive Trigger



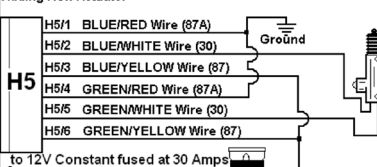
Type "B" Negative Trigger



Type "C" 5-wire Locks



Adding New Actuator



WIRING CONNECTIONS

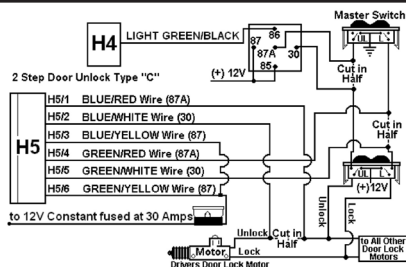
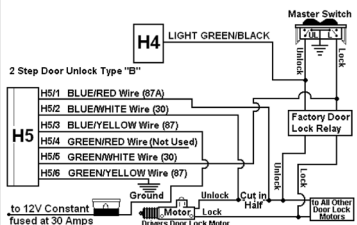
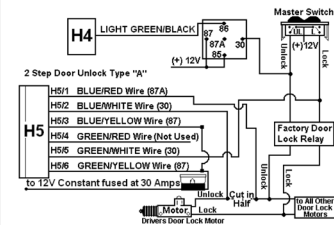
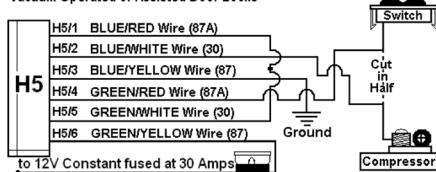
VACUUM OPERATED DOOR LOCKING SYSTEM: TYPICAL OF MERCEDES BENZ AND AUDI.

Locate the wire under the driver's kick panel.

Use the voltmeter connecting to ground,

verify the you have the correct wire with the doors unlocked, the voltmeter will receive "12 volts". Lock the doors and the voltmeter will read "0 volt". Move the alligator clip to +12V and the voltmeter will receive "12 volts". Cut this wire and make connections. Be sure to program door lock timer to 3.5 seconds. (See Feature I-2 Programming.)

Vacuum Operated or Assisted Door Locks



LCD REMOTE CONTROL TRANSCIVER

THE REMOTE LCD ICON DESCRIPTION CHART:



Door Lock

Your vehicle doors are locked.



Door Unlock

Your vehicle doors are unlocked



Remote Transmission

You are transmitting the signal to the control unit.



In-Range Indicator

The system is within the remote control range.



Engine Starting

Your engine is starting by remote control.



Engine Running

Your vehicle's engine is running in remote start mode.



Timer Control Start

Engine will start automatically the same time or every 2 to 3 hours.



Vibration Mode

Remote vibrates when the system is triggered.



Low Battery

You must replace the battery in the control module.



Driver paging/Lost and Found

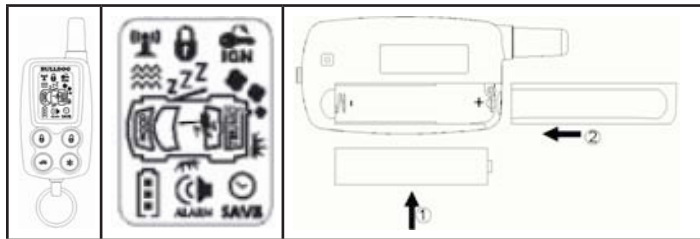
Someone is paging you from your vehicle.

OPERATION

G. DISABLING THE REMOTE START SYSTEM: (If installed)


This feature allows your system's remote start unit to be temporarily disabled to prevent the vehicle from being remote started accidentally. This feature is useful if the vehicle is being serviced or stored in an enclosed area. To disable the remote start, move the optional remote start enable toggle switch to the OFF position.

LCD REMOTE TRANSCEIVER



Note: If the system is interfered with stronger radio frequency around, sources of high voltage electric power or such or if there are obstacles like tall buildings and so on, the transmission range may get shorter as the system uses low out put power.

BATTERY REPLACEMENT:

A 1.5V type AAA Alkaline battery powers the Remote Transceiver. When the battery weakens a  icon shall be displayed on the LCD screen.

WIRING CONNECTIONS

H6/2-PIN BLUE CONNECTOR FOR THE PROGRAM SWITCH

Select a mounting location for the switch that is easily accessible to the driver of the vehicle. The switch does not have to be concealed, however, concealing the switch is always recommended. Route the program switch wires to the control module.

PROGRAMMING

A. PROGRAMMING A NEW TRANSMITTER:

Before doing any Programming, make sure the Module is in UNLOCK Mode, even if you choose not to connect up the Keyless Entry section of this unit. To program, the unit must be in UNLOCK Mode or the programming will not take.

Your two-way remote transmitter may need to be programmed to the transceiver when you first install the unit. Please confirm that the antenna transceiver is plugged into the control module before programming is attempted. Note: The control module will only retain the last 4 remote transmitters programmed. If the transmitter memory is exceeded, the security system will start deleting transmitters from memory in chronological order.

1. Turn the Ignition switch from 'OFF' to 'ON' [3] times and leave in the 'ON' position.
2. Within 15 seconds, push the valet/program switch (3) times and on the 3rd push hold it in until a long chirp from horn then release the valet/program switch. You are now in the transmitter programming mode.
3. Press and hold any button on the transmitter until (1) chirp from the horn and (1) flash from the parking lights confirming the first transmitter is now programmed.
4. If you have additional transmitters (up to 4) that need to be programmed, repeat step 3 for each transmitter.

B. FEATURES PROGRAMMING:

Before doing any Programming, make sure the Module is in UNLOCK Mode, even if you choose not to connect up the Keyless Entry section of this unit. To program, the unit must be in UNLOCK Mode or the programming will not take.

PROGRAMMING





ALARM FEATURE. #1 PROGRAMMING:

1. Turn the Ignition switch from "ON" to "OFF" (3) times and leave in the "OFF" position.
2. Push the programming switch (2) times and on 2nd push hold it until (1) chirp followed with a long chirp is heard, then release the switch. You are now in the "alarm feature #1 programming mode".
3. Press and release the transmitter button that corresponds to the feature you desire to program.
 - a. The amount of horn chirps and LED pause will indicate the previous setting.
 - b. The factory default settings will always be (1) LED flash and (1) horn chirp.
4. Press the transmitter button again to change the feature. Simply keep pressing the transmitter button until the module advances to your desired programming setting.

Example:

- a. After you hear (1) chirp, press the button again and the module will advance to (2) LED flashes and (2) horn chirps.
- b. Press the button again, the module will advance to (3) LED flash and (3) horn chirps etc.

FEATURE # 1 PROGRAMMING CHART

Press Transmitter Button	One Chirp with One LED Pulse Factory Default Setting	Two Chirps with Two LED Pulses	Three Chirps with Three LED Pulses	Four Chirps with Four LED Pulses
1 	Chirps On	Chirps Off		
2 	0.8 second door lock pulse	3.5 second door lock pulse	Double pulse unlock	Door lock with "Comfort Feature"
	Five Chirps = 0.8 second Lock, double 0.8 second Unlock Six Chirps = Double 0.8 second Lock, 0.8 second Unlock Seven Chirps = Door lock with "Comfort Feature"			
3 	Ignition controlled door lock and unlock	Ignition controlled door locks only	Ignition controlled door unlock only	Without ignition controlled door lock and unlock
4 * 	Without this feature	Door lock Before start	Door lock after shut down	Door lock before start and door lock after shut down

Exit: Turn Ignition to "ON" position, or leave it for 15 seconds. (3) long horn chirps and (3) parking light flashes to confirm exit.

OPERATION


3. Rapidly depresses the * button. The parking light will flash (3) times. The siren or horn chirps (3) times. The vehicle is now programmed to start every 2 or 3 hours.
4. Press the brake pedal to stop the vehicle running.

Exit the timer start:

Timer start can be exited manually as follows:

1. Make sure the remote start system is not operating the engine.
2. Turn the ignition on. The LED and parking light will flash (4) times. The horn chirps (4) times.

Or

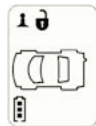
1. Press the * button twice to remote start the vehicle. As soon as the vehicle is running and the parking light have turned on or flashing.
2. Immediately depress the  button then press and hold the * button for (2) seconds. The parking light will flash (4) times. The siren or horn chirps (4) times. The vehicle is no longer programmed to start automatically.

E. TO TURN OFF THE REMOTE START:

When the engine is running (by remote start), if you want to stop it,

1. Press * button twice on the remote transmitter under remote start mode.
2. Move the optional remote start enable toggle switch to OFF position. (If installed)
3. Press the brake pedal.

The vehicle will shut down and turn off the parking light to indicate engine stopped.



F. SHUT-DOWN INPUT FOR REMOTE STARTER:

If any of the following conditions exist while the system is operating, the engine will not start or will shut down immediately:

1. The hood is opened.
2. The brake pedal is pressed.
3. Engine is over-revved. ("Tachometer checking type" only)
4. The pre-programmed run time (5 110 / 20 / 30 minutes) has elapsed.
5. Press * button twice on the remote transmitter under remote start mode.
6. Move the optional remote start enable toggle switch to OFF position. (If installed)
7. The vehicle refused to start running after (3) unsuccessful attempts.

OPERATION

Note: The Remote Start Unit will not start the vehicle if any one of the following conditions exists:

1. The hood is opened.
2. The brake pedal is pressed.
3. Move the optional remote start enable toggle switch to OFF position. (If installed)
4. The gear selector is in any gear other than "PARK or "NEUTRAL".

B. TO OPERATE THE VEHICLE WHILE RUNNING ON THE REMOTE START:

To operate the vehicle while the engine is running on the remote starter.

1. Insert the ignition key and turn it to "ON" (not the crank) position.
2. Press the brake pedal.

Note: If the brake pedal is pressed before the key is in the ON position, the engine will shut down.

C. PIT STOP FEATURE:

This feature allows the vehicle to remain running after the key has been removed from the ignition. This feature is useful for occasions when you wish to exit and lock the vehicle for short periods of time, but would like to leave the motor running and the climate control on.

1. Before turning off the engine press the * button twice on the transmitter and the LED indicator will flash (3) times to confirm enter.
2. Turn the ignition key to OFF position. (The engine will stay running.)
3. The engine will run until the pre-programmed time elapsed or shutdown input is received.


D. TIMER START:

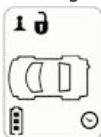
This unit can be programmed to start and run the engine every 2 or 3 hours the engine will run for the programmed time and then shut down.

IMPORTANT: Timer Start should be used only in open areas, never start and run the vehicle in an enclosed space as a garage or carport.

This feature is designed for an extreme cold climate usage. The system will auto start the vehicle every 2 or 3 hours to prevent engine freezing and hard to start. A MAXIMUM OF SIX CYCLES CAN OCCUR.

ENTER

1. Press the * button twice to remote start the vehicle. As soon as the vehicle is running and the parking light have turned on or flashing.
2. Immediately depress the  button once, within (2) secs.







PROGRAMMING

FEATURE "II" PRORAMMING:

1. Turn the Ignition switch "ON/OFF" (3) TIMES and leave in the "OFF" position.
2. Push the Program switch (4) times and hold in on the 4th push until (2) chirps with a long chirp is heard then release the Program switch. You are now in the feature "II" programming mode.
3. Press and release the transmitter button that corresponds to the feature you desire to program.

FEATURE # II PROGRAMMING CHART

Press Transmitter Button	One Chirp with One LED Pulse Factory Default Setting	Two Chirps with Two LED Pulses	Three Chirps with Three LED Pulses
1 	Pathway Illumination	Parking lights turn "on" for 30-seconds upon an unlock signal & 10-seconds upon a lock signal	Parking light turns "on" for 30-seconds upon an unlock signal & 10-seconds upon a lock signal
2 	Constant parking Light output	Flashing parking light output	
3 	Brown/Black Wire=Security Rearm Signal Output	Brown/Black Wire= Ground Output during state (crank)	
4 * 	Lt. Green/Black wire =Dual pulse door unlock output	Lt. Green/Black Wire= Factory security disarm signal output	Lt. Green/Black Wire=Start status output (shock sensor bypass)

EXIT: Turn Ignition to "ON" position, or leave it for 15 seconds. (3) long horn chirps and (3) long horn chirps and (3) parking light flashes will confirm exit.

PROGRAMMING

FEATURE #III PROGRAMMING

1. Turn the ignition switch **"ON/OFF" (3) TIMES** and leave in the **"OFF"** position.
2. Push the Program switch (6) times and hold in on the 6th push until (3) chirps with a long chirp is heard then release the Program switch. You are now in the feature **"III"** programming mode.
3. Press and release the transmitter button that corresponds to the feature you desire to program.

FEATURE #III PROGRAMMING CHART

Press Transmitter Button	One Chirp with One LED Pulse Factory Default Setting	Two Chirps with Two LED Pulses	Three Chirps with Three LED Pulses	Four Chirps with Four LED Pulses
1	Gasoline Engine	N/A	N/A	N/A
2	20 minute run time	30 minute run time	5 minute run time	10 minute run time
3	Factory alarm/disarm with all output channels	Without this feature		
4	3 Hour Time Start	2 Hour Time Start		

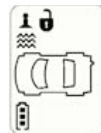
EXIT: Turn Ignition to **"ON"** position, or leave it for 15 seconds. (3) long horn chirps and (3) parking light flashes will confirm exit.

OPERATION

J. VIBRATION/MELODY MODE:

It is useful when you are in a noisy place. The remote control in this mode, vibrates it if your security system is triggered.

1. Press button first, within (5) seconds, press the button to select the mode of vibration or melody, the icon will displayed on the LCD screen to show the LCD remote transceiver is on vibration mode.
2. To exit programming mode, take no action for (5) seconds. The remote control will generate two long beeps to indicate programming mode has been exited.



K. SCREEN LAMP ON:

Press the button once; the LCD screen lamp will turns on for (5) seconds.

REMOTE START OPERATION:

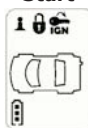
NOTE ** If you press the (START) button (2) times and you get no response from the remote control to the unit, try all other buttons. If you get no response to the other buttons on the remote control, please see page 23 and follow the instructions for PROGRAMMING A NEW TRANSMITTER procedure.

TO REMOTE START THE VEHICLE:

When you want to start your vehicle,

1. Press button twice on the transmitter
2. The parking light will activate to indicate the remote start received the signal. (A melody sounding from your Remote LCD transceiver and icon will flashes on the LCD screen to confirm the remote start was activated.)
3. The engine will start in approximately (5) seconds.
4. Once the engine is running, after a couple of seconds the parking light will turn on again and climate controls will activate and adjust the vehicles interior temperature to your preset setting. (While the vehicle is running, the icon and the "minutes" digit on the LCD screen will flash and it will indicate count down timer based on the 5, 10, 20 or 30 minute run time set up by your installation center.)
5. The vehicle will run for 5 to 30 minute cycle and automatically shut down. (When the unit shuts off, the count down timer will turn off and the transmitter will play a melody.)

Active Remote Start




Engine Running





OPERATION

D. CAR LOCATOR

Press the  button twice to active car locator function. The horn will chirp (6) times. The parking light will flash (12) times, for you to easily locate your car.

E. PANIC FUNCTION:

The transmitter can be used as a remote panic switch to manually trigger the alarm in case emergency.

1. Press and hold the  button for (3) seconds. The horn (if installed) will immediately sound.
2. During panic mode, the normal function of this transmitter button will be suspended.
3. To stop the alarm, press and hold  button on the transmitter again for (3) seconds.
4. If the button is not pressed, the alarm will automatically stop after 30 seconds.

F. DOME LIGHT CONVENIENCE DELAY & SUPERVISION


Upon disarming, the interior light will remain on for 30 seconds.

Note: Turning on the ignition switch or locking the vehicle's door will turn off the dome light.

G. IGNITION CONTROL DOOR LOCK/UNLOCK


If the vehicles door locks have been interfaced to the system, the system will automatically lock the vehicle's doors when the ignition is turned "ON" and /or unlock the vehicle's doors when the ignition is turned "OFF".

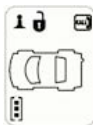
H. TRUNK RELEASE (CHANNEL 3) OUTPUT.

Press and hold  button on the transmitter for (2) seconds to operate the trunk release or other electric devices.

I. DRIVER PAGING / LOST & FOUND

(For two-way transceiver operation only)

It is useful in the event that someone wants to page the driver of the parked vehicle or someone cannot find his LCD remote control transceiver. With the ignition switch "off", press and hold the valet switch for (2) seconds to page the driver, one chirp sound shall be emitted from the vehicle and the paging melody sound continues sounding from the Remote LCD transceiver and  indication flashes on the LCD screen.








PROGRAMMING

FEATURE 'IV' PROGRAMMING:

1. Turn the Ignition 'switch "ON/OFF" (3) TIMES and leave in the "OFF" position.
2. Push the Program switch (8) times and hold in on the 8th push until (4) chirps with a long chirp is heard then release the Program switch. You are now in the Start feature "IV" programming mode.
3. Press and release the transmitter button that corresponds to the feature you desire to program.



FEATURE CHART #IV

Press Transmitter Button	One Chirp with One LED Pulse Factory Default Setting	Two Chirps with Two LED Pulses	Three Chirps with Three LED Pulses	Four Chirps with Four LED Pulses
1 	Exit the programming mode. (3 long chirps and 3 parking light flashes to confirm this exit.)			
2 	Engine Checking Voltage	Engine Checking TACH / RPM Learning Mode		
3 	Start Timer: 0.6-second	0.8-second (2chirps), 1.0-second (3 chirps) 1.2-second (4 chirps), 1.4 - second (5 chirps) 1.6-second (6 chirps), 1.8-second (7 chirps), 2.0-second (8 chirps), 3.0 second (9 chirps), 4.0 -second (10 chirps)		
4 	Hi Check Level	Low Check Level		

Exit: Press the  button on the transmitter. (3) long horn chirps and (3) parking light flashes to confirm exit.

ENGINE CHECKING TACHIRPM LEARNING:

IMPORTANT NOTE: You must Disarm the "Tach Signal" before trying to remote start.

1. Turn the Ignition switch "ON/OFF" (3) TIMES and leave in the "OFF" position.
2. Push the Program switch (8) times and hold in on the 8th push until (4) chirps with a long chirp is heard then release the Program switch.
3. Press and release the transmitter  and  buttons at the same time the LED will flash twice and the horn will chirp twice to confirm the system is in 'RPM Learning mode'.

PROGRAMMING

- Within (10) seconds, start the vehicle with the key. (While the engine is running, the parking lights and LED will flash, If they are not flashing please check **VIOLET/WHITE**, wire connection.
 - Press and hold the Program switch for (2) seconds until a long chirp and the LED light will glow constantly on for two seconds. The RPM signal is now learned.
 - Turns off the ignition switch to stop, engine from running
- Once you complete step 6, you can adjust and test "Check Level" as below:

CRANK TIME ADJUST / HI OR LOW LEVEL CHECK

- Press the *** button twice** on the transmitter to start the vehicle.
- If everything goes well:
 - Press the *** button twice** on the transmitter to stop engine running. You have completed this programming successfully.
 - Press **button** on the transmitter to exit the program mode. There will be **(3) long chirps** and **(3) parking light flashes** for confirmation.
- If the crank time is too short, (Engine not running, before the starter stops cranking):
 - Press the *** button twice** on the transmitter to turn the ignition off. Press **button** on the transmitter to set proper "Check Level" to Hi position. **(1) LED flash** and **(1) chirp** will confirm this setting.
 - Repeat the steps 1 - 4.

ENGINE CHECK VOLTAGE:

Important Note: The "Check Level" for most vehicles should be set in "Hi Check Level", while in "Engine Check Voltage mode", the "Check Level" must be set at "Hi" position before proceeding.

- Turn the Ignition switch **"ON/OFF" (3) TIMES** and leave in the **"OFF"** position.
- Push the Program switch, (8) times and hold in on the 8th push until (4) chirps with a long chirp is heard then release the Program switch.
- Press the transmitter **button** and **button** at the same time to set the "Engine Check Voltage". (1) LED flash, (1) chirp to confirm this setting.

Once you complete step 3, you can adjust and test 'Start Timer as below:

OPERATION

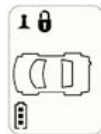
A. REMOTE TRANSMITTER OPERATION:

Transmitter Button	System Function or Feature	Remark
	Lock Doors	
	Car Locator	Press twice within 3 sec.
	Panic	Press and hold for 3 sec.
	Silent Locking / Unlocking	Ign. in the "Off" position.
	Unlock Doors	
	Two Steps Door Unlock	Press twice within 3 sec.
	Trunk Release (Channel 3)	Press and hold for 2 sec.
	Activate or Turn Off The Remote Start	Press twice within 3 sec.
	Melody / Vibration Mode	
	LCD Screen Lamp Turns on for 5 Seconds	

B. LOCK DOORS:

- Press **button** on the transmitter.
- The horn will chirp once and parking light will flash once indicating that the vehicle's door is locking.

SILENT LOCKING / UNLOCKING DOORS: Press the transmitter **button** and **button** at the same time will Lock or Unlock the vehicle's doors. No chirp sound will be heard. Lock or Unlock confirmation will be through the vehicles parking lights only.

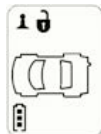


C. UNLOCK DOORS:

- Press **button** on the transmitter.
- The horn will chirp twice and parking light flash twice to indicating that the vehicle's door is unlocking and the dome light will turn on for 30 seconds.

PATHWAY ILLUMINATION: This feature turns the parking light "ON" for 30 seconds upon a unlock signal and for 10 seconds upon the lock signal.

TWO STEPS DOOR UNLOCK: This feature will independently unlock the driver's door only. Pushing the **button** a second time within 3 seconds will unlock the other doors.



IMPORTANT OWNER'S NOTICE

WARNINGS:

As with any product that performs automatic functions, there are certain safety precautions that you must practice and be aware of.

1. Keep the transmitter out of children's reach.
2. Do not leave anyone in the vehicle while running on remote control.
3. Alert servicing personnel that the vehicle can be started automatically.
4. Do not start the vehicle by remote while it's in an enclosed area or garage.
5. Always apply the parking brake and lock the vehicle as you exit the vehicle.
6. The vehicle windows must be rolled up.
7. Should the unit malfunction, disconnect the fuse until the problem is corrected.
8. The use and operations of this system is the sole responsibility of the operator.
9. Some areas may have local ordinances that prohibit leaving a vehicle running on public streets.
10. Do not start the vehicle by remote while the standard transmission vehicle is parked on a steep road.

PROGRAMMING



START TIMER PROGRAMMING: (TEST and ADJUST)

1. Press the ***** button twice on the transmitter to start the vehicle.
2. If everything goes well: Wait for 15 seconds:
 - a. If the engine is still running.
 - I. Press the ***** button twice on the transmitter to stop the engine from running. You have completed this programming successfully.
 - II. Press ***** button on the transmitter to exit the program mode. There will be (3) long chirps and (3) parking light flashes for confirmation.
 - b. If the engine shut down after the vehicle was started.
 - I. Press the **🔒** button twice on the transmitter to remotely turn off the ignition.
 - II. Press **🚗** button on the transmitter to set "Check Level" to "**LOW**" position. (2) LED flashes, (2) chirps to confirm this setting.
 - III. Repeat the step I - 2.
3. If the crank time is too long, (Engine already successfully running, while starter remains engaged):
 - a. Press the ***** button twice on the transmitter to stop the engine from running.
 - b. Press **🔒** button on the transmitter to set proper "Start Timer". The chirp and LED pause will confirm that you have entered this mode. (Decrease "Start Timer" as necessary.)
 - c. Repeat the step I - 4.
1. If the crank time is too short, (Engine is not running, starter did not stay engaged long enough):
 - a. Press the ***** button twice on the transmitter to stop engine running.
 - b. Press **🔒** button on the transmitter to set proper "Start Timer". The chirp and LED pause will confirm this enters. (Increase "Start Timer" is necessary.)
 - c. Repeat the step I-4.

RETURN TO FACTORY DEFAULT SETTING:


1. Turn the ignition "**ON**" then "**OFF**" (3) **TIMES** and stay in "**OFF**" position.
2. Push the Program switch (12) times and hold in on the 12th push until (6) chirps with a long chirp is heard then release the Program switch. You are now in the "Return To Factory Default Setting" programming mode.

PROGRAMMING

- Press and hold the  and  buttons at the same time on the transmitter for 5 seconds, there will be a confirmation of (6) chirps with (3) long chirps and the LED turns On for (2) seconds to confirm the system, Feature Programming all returns to factory default setting.

SHUTDOWN DIAGNOSTICS:

The unit has the ability to report the cause of the last shutdown of the remote start system.

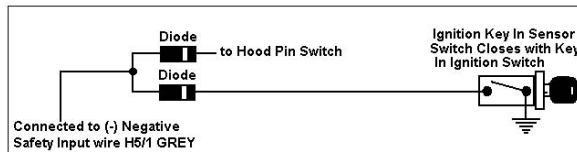
- Turn the Ignition switch to "ON" position.
- Press the  button on the transmitter.
- The LED will now report the last system shutdown by flashing for (1) minute in the following grouped patterns:

LED Flashes	Shutdown Mode	
1	(-) Safety Shutdown Input (Hood)	1. Close the Hood 2. Check GREY wire connection
2	(+) Safety Shutdown input (Brake) or Neutral Safety Switch input fail	1. Check BROWN/RED wire connection 3. Move the Enable Toggle Switch to "ON" position. (If installed) 4. Move the gear selector to "PARK" / "NEUTRAL" position. 5. Check THIN BLACK wire connection.
3	No RPM (Engine Checking TACH) or Hi Voltage. (Engine Checking voltage.)	Check VIOLET/WHITE wire connection Program the "CHECK LEVEL" from "Hi Check Level" to "Low Check Level"
5	Over-rev	
6	System timed out	
7	Transmitter	
8	Tach Signal has not been learned	Re-learning the RPM (Feature IV - 2)

TESTING YOUR INSTALLATION

Note: A second **IN4003 series diode** may be required to maintain the integrity of the hood open, shut down circuit. If this is the case, it must be installed as shown in the diagram above. The anode (Non Stripped) side must be connected to the **GREY (H4/4)** wire of the remote start unit. The cathode (Striped) side must be connected to the hood pin switch.

METHOD 2



To connect to the key in sensor circuit as shown for method 2:

- Locate the control wire that connects the driver's door pin switch to the key in sensor switch.
- Cut this wire and connect the ignition cylinder side to chassis ground.
- Locate the key in sensor switch wire that connects the chime module to the ignition cylinder.
- Cut this wire and connect the ignition cylinder side to the Remote Start Negative Safety Shut down wire **GREY (H4/4)**, using an **IN4003 series diode** as shown above.

Note: A second 4003 series diode may be required to maintain the integrity of the hood open, shut down circuit. If this is the case, it must be installed as shown in the diagram above. The anode (Non-striped) side must be connected to the **GREY (H4/4)** wire of the remote start unit. The cathode (Striped) side must be connected to the hood pin switch.

AFTER THE CONNECTION OF THE NEUTRAL START SAFETY WIRE AS INDICATED IN ANY OF THE PREVIOUS ALTERNATE CONFIGURATIONS, THIS CIRCUIT MUST BE TESTED FOR OPERATION.

Retest by following the steps outlined in the NEUTRAL START SAFETY TEST shown in this manual.

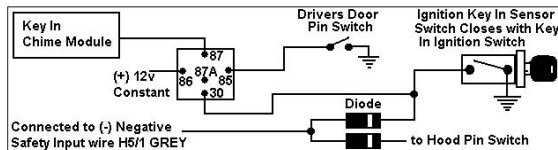
TESTING YOUR INSTALLATION

Method 2 will allow the safety required for the remote start unit and prevent the vehicle from starting while in any gear other than Park or Neutral while the key is in the ignition cylinder however, the original factory key in chime module will not alert the owner that the key has been left in the ignition switch. In addition, this may also affect other warning tones such as the light on reminder.

Note:

Additional information concerning key in sensor methods 1 and 2 are listed below and should be reviewed before considering either alternative.

METHOD 1



To connect to the key in sensor as shown in methods 1 and 2 are listed below and should be reviewed before considering either alternative.

- Locate the control wire that connects the driver's door pin switch to the key in sensor switch.
- Cut this wire and connect the ignition cylinder side to a chassis ground.
- Locate the key in sensor switch wire that connects the chime module to the ignition cylinder.
- Cut this wire and connect the ignition cylinder side to terminal 30 of a P&B VF45F11 or equivalent relay.
- Connect the cathode (striped) side of an **IN4003** series diode to this same wire, and connect the (non striped) side to the negative safety input wire (**GREY**) (**H4/4**) of the remote start unit.
- Connect terminal 87 of the relay to the chime module side of the previously cut wire in step D.
- Connect terminal 85 of the relay to the driver's door side of the pin switch wire previously cut in step B.

TESTING YOUR INSTALLATION

TESTING YOUR INSTALLATION:

Caution!! The follow procedure must be performed after the installation of the Remote Start Device. It is the responsibility of the installing technician to complete these tests. Failure to test the unit in the following manner may result in personal injury, property damage, or both.

- Test the **BRAKE** shutdown circuit: With the vehicle in park (P), start the vehicle using the remote transmitter. Once the engine is running, press the brake pedal. The vehicle should shutdown immediately. If the vehicle continues to run, check the brake circuit **BROWN/RED H4/3** wire connection.
- Test the **HOOD PIN** shutdown circuit: Start the vehicle using the remote transmitter. Once the engine is running, pull the hood release and raise the hood. The vehicle should shut down immediately. If the vehicle continues to run, check the hood pin **GREY (H 414)** wire connection.

3. NEUTRAL START SAFETY TEST:

- Set the vehicle parking brake.
- Block the drive wheels to prevent vehicle movement.
- Sitting in the vehicle, turn the ignition switch to **"ON"** or **"RUN"** position. But do not start the engine.
- Step on the brake pedal and shift the gear selector into **"DRIVE"** (D).
- Put your foot over the brake pedal but do not press down on it. Be ready to step on the brake to shut down the Remote Start Device.
- Start the vehicle using remote transmitter.
 - If the starter does not engage, the test is complete.
 - If the starter engages, immediately step on the brake pedal to shut down the system, recheck your **VIOLET (H1/1)** wire (starter output wire) connection. The heavy gauge **VIOLET (H1/1)** wire must be connected to the ignition switch side of the Neutral Start Switch. If the vehicle you are working on does not have an Electrical Neutral Safety Switch, it will be necessary to reconfigure the Remote Starter Wiring to accommodate this vehicle. The information concerning the Mechanical Neutral Safety Switch provided below will help you to determine if the vehicle you are working on has this type of safety switch and will provide alternate wiring methods to accommodate this situation.

TESTING YOUR INSTALLATION

MECHANICAL NEUTRAL SAFETY SWITCH CONSIDERATIONS:

Mechanical neutral safety switch configurations differ slightly in that they do not offer the same level of safety when installing a remote start device. Often when the ignition switch is turned off while the gear selector is in any position other than park or neutral, the mechanical function will not allow the key to be turned to the start position or be removed from the ignition cylinder. This configuration prevents mechanical operation while the vehicle is in gear but offers no consideration for electrical operation. Because of this potential problem, this installation requires the additional connection of a safety wire from the remote start device to the vehicle PARK/NEUTRAL ECM input or the vehicle key in sensor. This connection will prevent remote start operation if the key is left in the ignition switch regardless of the gear selector position.

Understanding the difference between a mechanical and an electrical Neutral Start Switch will allow you to properly identify the circuit and select the correct installation method. The connection of the safety wire is required for all mechanical switch configurations. Failure to make this connection properly can result in personal injury and property damage. In all installations it is the responsibility of the installing technician to test the remote start unit and assure that the vehicle can not start via RF control in any gear selection other than park or neutral. In both mechanical and electrical neutral start switch configurations.

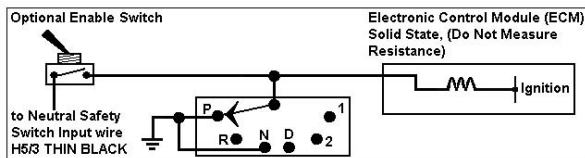
PARK/NEUTRAL ECM INPUT:

The Park/Neutral ECM input is the preferred method of installation. This not only maintains the integrity of the factory circuit, it is also the easiest to install, provided the vehicle you are working on has this ECM input. The installation required for this application (shown below), is a slight reconfiguration of the control switch wiring. Shown is a typical GM Park/Neutral ECM input circuit. To connect the Remote Start unit to the GM Park/Neutral ECM input:

1. Locate the **Orange/Black** reference wire in the "C2" connector found at the ECM in GM B Body vehicles or, locate the equivalent reference wire in the vehicle you are installing the Remote Start Unit in.
2. Connect the **THIN BLACK (H412)** Neutral Safety Switch wire to this reference wire. **NOTE:** If the optional remote starts enable toggle switch is installed, connect the one side of the enable switch to this reference wire and connect the other side of the enable switch to the **THIN BLACK (H412)** Neutral Safety Switch wire of the Remote Start unit.

TESTING YOUR INSTALLATION

NOTE: If the optional remote starter enable toggle switch is installed, connect the one side of the switch to this reference wire the other side of to the **THIN BLACK** Neutral Safety Switch wire (**H4/2**) of the remote start unit. The reference diagram below shows a typical GM B Body ECM reference wire and how to connect it to the remote start unit.



KEY I N SENSOR CIRCUITS:

If the vehicle you are working on does not have or you cannot locate the ECM reference wire, there are two alternatives available. Although not preferred, the vehicle Key In Sensor may be reconfigured to allow a margin of safety and will prevent the vehicle with a Mechanical Neutral Start Switch from starting in gear.

WE ADVISE THAT YOU MAINTAIN THE FACTORY CIRCUIT WHENEVER POSSIBLE. The following two circuits may be used only if the above circuit is not available.

NOTE: When completing an installation using either of the following key in sensor circuits, if the operator inserts the ignition key while the vehicle is running under the control of the Remote Start, the vehicle will shut down. This must be explained to the operator as it is in contrast to the normal operation of a vehicle utilizing an electrical neutral start switch and is inconsistent with the operator's manual. Additional information concerning Key in Sensor methods 1 and 2 are listed below and should be reviewed before considering either alternative.

Method 1 will allow the safety required for the remote start unit and prevent the vehicle from starting while in any gear other than Park or Neutral while the key is in the ignition cylinder however, if the key is left in the ignition switch and the door is left opened, the added relay will be energized causing a 150mA drain on the battery.